

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Original) A non-naturally occurring glycolipopeptide comprising at least five amino acids, at least one amino acid being a glycosylated amino acid and at least one amino acid being a lipidated amino acid, where at least one lipidated amino acid is an interior amino acid, said glycolipopeptide comprising at least one disease-associated epitope.

2. (Original) The glycolipopeptide of claim 1 where at least one epitope is a cancer-associated epitope.

3. (Original) The glycolipopeptide of claim 1 where at least one epitope is a bacteria-associated epitope.

4. (Original) The glycolipopeptide of claim 1 where at least one epitope is a parasite -associated epitope.

5. (Original) The glycolipopeptide of claim 1 where at least one epitope is a virus-associated epitope.

6. (Original) The glycolipopeptide of claim 2 where at least one epitope is a MUC1 epitope.

7. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-6~~ claim 1 which comprises at least one B cell epitope.

8. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-6~~ claim 1 which comprises at least one T cell epitope.

9. (Original) A non-naturally occurring glycolipopeptide comprising at least five amino acids, at least one amino acid being a glycosylated amino acid and at least one amino acid being a lipidated amino acid, said glycolipopeptide comprising at least one B cell epitope or at least one T cell epitope, at least one of said epitopes being a MUC1 cancer-associated epitope.

10. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-9~~ claim 1 which comprises at least one

MUC1 B cell peptide epitope and at least one MUC1 T cell peptide epitope.

11. (Currently Amended) The glycopeptide of ~~any one of claims 1-10~~ claim 1 which comprises the amino acid sequence PDTRP (AAs 6-10 of SEQ ID NO:10).

12. (Original) The glycolipopeptide of claim 11 which comprises the amino acid sequence SAPDTRP (AAs 4-10 of SEQ ID NO:10).

13. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-9~~ claim 1 which comprises at least one copy of (a) the MUC1 consensus tandem repeat

GVTSAPDTRPAPGSTAPPAH (SEQ ID NO:10) ,

(b) a cyclic permutation thereof, or (c) a sequence substantially identical to (a) or (b) above.

14. (Original) The glycolipopeptide of claim 13 which comprises at least two copies of (a), (b) or (c).

15. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-14~~ claim 1 where at least one glycosylated amino acid is O-glycosylated.

16. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-15~~ claim 1 where at least one glycosylated amino acid is N-glycosylated.

17. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-16~~ claim 1 where at least one glycosylated amino acid is S-glycosylated.

18. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-17~~ claim 1 which comprises a tumor-associated carbohydrate epitope.

19. (Original) The glycolipopeptide of claim 18 where the carbohydrate epitope is GalNAc (Tn).

20. (Original) The glycolipopeptide of claim 18 where the carbohydrate epitope is sialyl Tn.

21. (Original) The glycolipopeptide of claim 18 where the carbohydrate epitope is Gal-GalNAc (TF).

22. (Original) The glycolipopeptide of claim 11 where the threonine of PDTRP is glycosylated.

23. (Original) The glycolipopeptide of claim 22 where the threonine of PDTRP is O-linked to Tn.

24. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-23~~ claim 1 where at least two amino acids are glycosylated.

25. (Original) The glycolipopeptide of claim 9 in which at least one interior amino acid is lipidated.

26. (Currently Amended) The glycopeptide of ~~any one of claims 1-25~~ claim 1 in which at least two amino acids are lipidated.

27. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-25~~ claim 1 in which at least two interior amino acids are lipidated.

28. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-27~~ claim 1 in which all of the lipidated amino acids are interior amino acids.

29. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-28~~ claim 1 characterized by a carboxy terminal sequence SSL, where each of the serines is lipidated.

30. (Currently Amended) The glycolipopeptide of ~~any one of claims 1 to 29~~ claim 1 in which there are not more than 200 amino acids.

31. (Currently Amended) The glycolipopeptide of ~~any one of claims 1 to 29~~ claim 1 in which there are not more than 50 amino acids.

32. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-31~~ claim 1 wherein at least one lipidated amino acid comprises a strongly lipophilic group comprising at least 6 atoms other than hydrogen.

33. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-31~~ claim 1 wherein at least one lipidated

amino acid comprises a strongly lipophilic group comprising at least 11 atoms other than hydrogen.

34. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-31~~ claim 1 wherein at least one lipidated amino acid comprises a strongly lipophilic group comprising at least 13 atoms other than hydrogen.

35. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-31~~ claim 1 wherein at least one lipidated amino acid comprises a strongly lipophilic group comprising at least 21 atoms other than hydrogen.

36. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-35~~ claim 1 where said group consists of not more than 100 atoms other than hydrogen.

37. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-35~~ claim 1 where said group consists of not more than 40 atoms other than hydrogen.

38. (Currently Amended) The glycopeptide of ~~any one of claims 1-37~~ claim 1 in which at least one strongly

lipophilic group of at least one lipidated amino acid has a logP, as predicted by the Meylan algorithm of at least 2.7.

39. (Original) The glycopeptide of claim 38 where said predicted logP is at least 3.

40. (Original) The glycopeptide of claim 38 where said predicted logP is at least 4.

41. (Original) The glycopeptide of claim 38 where said predicted logP is at least 5.

42. (Original) The glycopeptide of claim 38 where said predicted logP is at least 6.

43. (Original) The glycopeptide of claim 38 where said predicted logP is at least 7.

44. (Original) The glycopeptide of claim 38 where said predicted logP is at least 8.

45. (Original) The glycopeptide of claim 38 where said predicted logP is at least 9.



46. (Original) The glycopeptide of claim 38 where said predicted logP is at least 10.

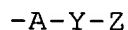
47. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-46~~ claim 1 in which the amino terminal amino acid comprises a strongly lipophilic group.

48. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-47~~ claim 1 in which the carboxy terminal amino acid comprises a strongly lipophilic group.

49. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-48~~ claim 1 in which at least one lipidated amino acid is selected from the group consisting of lipidated Ser, Thr, Asp, Glu, Cys, Tyr, Lys, Arg, Asn or Gln.

50. (Original) The glycolipopeptide of claim 49 where the lipidated amino acid is lipidated Ser or Thr.

51. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-50~~ claim 1 where at least one lipidated amino acid comprises a side chain of the formula



where A is optional but, if present, is an organic group of not more than 12 atoms other than hydrogen;  
Y is a spacer of not more than 12 atoms other than hydrogen, and comprising nitrogen, oxygen, sulfur or phosphorous, and Z is a strongly lipophilic group.

52. (Original) The glycolipopeptide of claim 51 in which A, if present, is an alkyl of 1-4 carbon atoms.

53. (Original) The glycolipopeptide of claim 52 in which A is present and is  $\text{-CH}_2\text{-}$  or  $\text{-CH(CH}_3\text{)-}$ .

54. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-53~~ claim 1 in which Y comprises a group selected from the group consisting of  $\text{-O-}$ ,  $\text{-S-}$ ,  $\text{-NH-}$ ,  $\text{-NR-}$ ,  $\text{-PO}_4\text{-}$ ,  $\text{-C(=O)-}$ ,  $\text{-C(=S)-}$ ,  $\text{-C(=NH)-}$ , and  $\text{-C(=NR)-}$ , where R is 1-4 alkyl.

55. (Original) The glycolipopeptide of claim 54 in which Y is  $\text{-NHCO-}$ ,  $\text{-OCO-}$  or  $\text{-SCO-}$ .

56. (Original) The glycolipopeptide of claim 54 in which Y is  $\text{-CONH-}$  or  $\text{-CH}_2\text{NH-}$ .

57. (Original) The glycolipopeptide of claim 54 in which Y is -O-, -S- or -NH-.

58. (Currently Amended) The glycolipopeptide of ~~any one of claims 51-57~~ claim 51 in which -Y-Z is itself a strongly lipophilic group.

59. (Original) The glycolipopeptide of claim 58 in which A is present and -A-Y-Z is itself a strongly lipophilic group.

60. (Currently Amended) The glycolipopeptide of ~~any one of claims 51-59~~ claim 51 in which Z is at least partially aromatic.

61. (Currently Amended) The glycolipopeptide of ~~any one of claims 51-59~~ claim 51 in which Z is aliphatic.

62. (Currently Amended) The glycolipopeptide of ~~any one of claims 51-61~~ claim 51 in which Z comprises at least one moiety of the form -A'-Y'-Z', where A', Y' and Z' are defined analogously to A, Y and Z, respectively.

63. (Original) The glycolipopeptide of claim 62 where Y' is -O- and Z' is an alkyl group.

64. (Original) The glycolipopeptide of claim 63 where A is  $-(CH_2)_i-$ , where i is 0 or 1, or Z' is  $-(CH_2)_jCH_3$ , where j is 6 to 26.

65. (Currently Amended) The glycolipopeptide of ~~any one of claims 62-64~~ claim 62 in which Z comprises  $-B(-Y'-Z')_n$ , in which B is a branched organic group of not more than 12 atoms than hydrogen, each Y' is an independently chosen spacer of not more than 12 atoms other than hydrogen, and comprising nitrogen, oxygen, sulfur or phosphorous, and each Z' is an independently chosen strongly lipophilic group, and n is at least two.

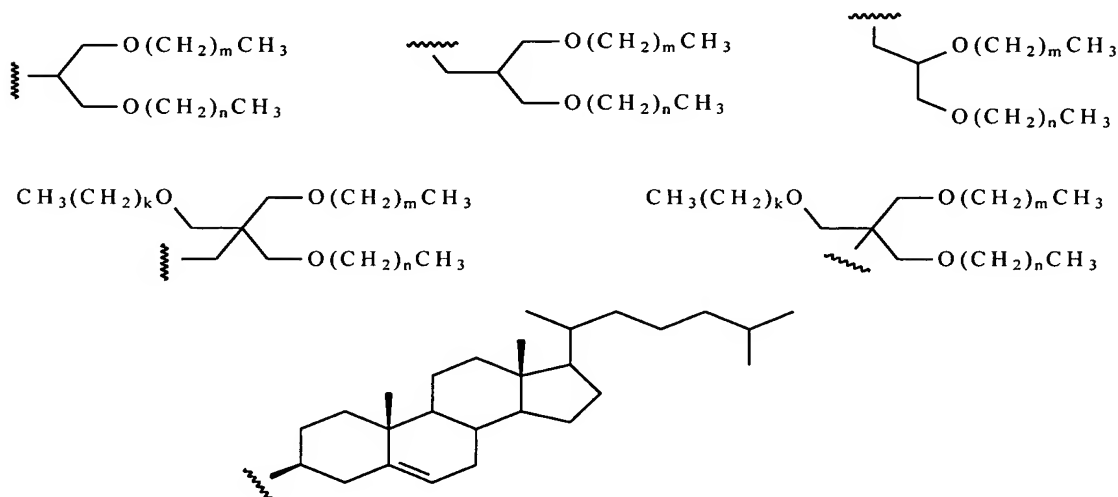
66. (Original) The glycolipopeptide of claim 65 in which n is 2 or 3.

67. (Currently Amended) The glycolipopeptide of ~~claims 65 or 66~~ claim 65 in which each Y' is -O- and each Z' independently is  $-(CH_2)_jCH_3$ , where j=6 to 26.

68. (Original) The glycolipopeptide of claim 67 in which  $n=2$  and B is  $-\text{CH}(\text{CH}_2-)_2$ .

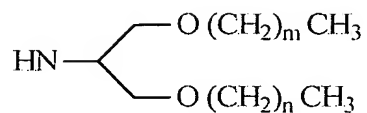
69. (Original) The glycolipopeptide of claim 67 in which  $n=2$  and B is  $-\text{C}(\text{CH}_2-)_3$ .

70. (Original) The glycolipopeptide of claim 1 where the strongly lipophilic group of at least one lipidated amino acid comprises at least one of the following structures:



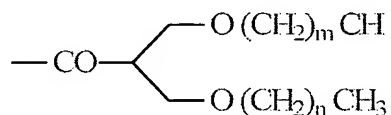
where  $m$ ,  $n$ , and  $k$  are independent integers with values ranging from 3 to 30.

71. (Original) The glycolipopeptide of claim 1 where at least one lipidated amino acid comprises the structure



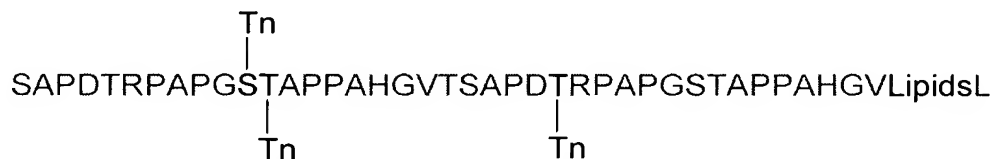
where m and n are independent integers with values ranging from 6 to 26.

72. (Currently Amended) The glycolipopeptide of ~~any one of claims 1-7~~ claim 1 where the strongly lipophilic group at least one lipidated amino acid comprises the structure



where m and n are independently chosen integers 6 to 26.

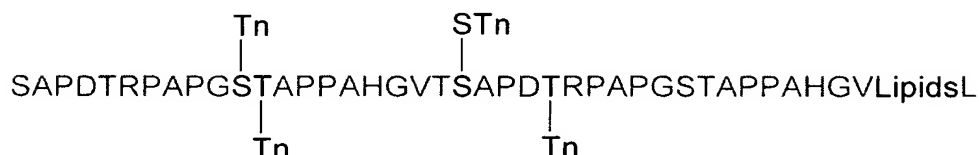
73. (Original) The glyco-lipo-peptide of claim 1, having the following structure:



where **Tn** is a N-acetyl galactosamine, and "Lipids" refers to two or more consecutive lipidated amino acids.

74. (Original) The glyco-lipo-peptide of claim 1,  
having the following structure:

where **Tn** is aN-acetyl galactosamine and **STn** is a(2-6) sialyl,



aN-acetyl galactosamine, and "Lipids" refers to two or more consecutive lipidated amino acids.

75. (Currently Amended) A method of eliciting an immune response which comprises administering an effective amount of a glycolipopeptide according to ~~any one of claims 1-74~~ claim 1 to a subject.

76. (Original) The method of claim 75 where said subject suffers from the disease with which said disease-associated epitope is associated.

77. (Currently Amended) A composition comprising a glycolipopeptide according to ~~any one of claims 1-74~~ claim 1, and a liposome.

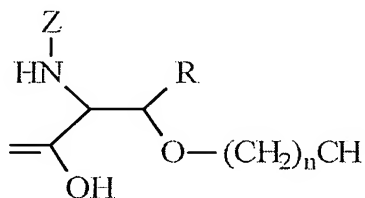
78. (Original) The composition of claim 77 which comprises phosphatidyl choline.

79. (Original) The composition of claim 78 which comprises cholesterol.

80. (Original) The composition of claim 79 which comprises phosphatidyl glycerol.

81. (Currently Amended) A method of eliciting an immune response which comprises administering an effective amount of a composition according to ~~any one of claims 77-80~~ claim 77 to a subject.

82. (Original) A lipidated amino acid of the following formula



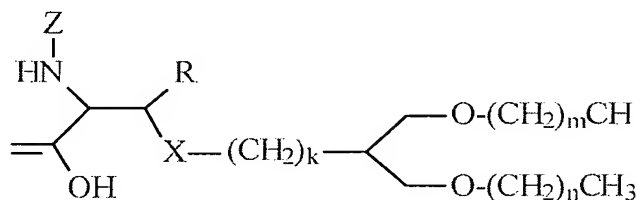
wherein Z is H or an amino protecting group,

R is H or CH<sub>3</sub>, and

n is an integer with values ranging from 6 to 26.



83. (Original) A lipidated amino acid of claim 1 is of the following composition:



wherein,

X is -O- or -S-,

Z is H or an amino protecting group,

R is H or CH<sub>3</sub>

k is an integer with values ranging from 0 to 6

m and n are independent integers with values ranging from 6 to 26.

84. (Currently Amended) The lipidated amino acid of ~~claims 82 or 83~~ claim 82 where Z is Boc or Fmoc.

85. (Currently Amended) The lipidated amino acid of ~~claims 82 or 83~~ claim 82 where Z is H.

~~84-86.~~ (Cancelled)

~~85-87.~~ (Original) The glycopeptide of claim 1 which comprises the amino acid sequence PDTRP (AAs 6-10 of SEQ ID NO:10).

~~86-88.~~ (Currently Amended) The glycolipopeptide of claim ~~85-87~~ which comprises the amino acid sequence SAPDTRP (AAs 4-10 of SEQ ID NO:10).

~~87-89.~~ (Currently Amended) The glycolipopeptide of claim 1 which comprises at least one copy of (a) the MUC1 consensus tandem repeat

GVTSAPDTRPAPGSTAPPAH (SEQ ID NO:10) ,

(b) a cyclic permutation thereof, or (c) a sequence substantially identical to (a) or (b) above.

~~88-90.~~ (Currently Amended) The glycolipopeptide of claim ~~87-89~~ which comprises at least two copies of (a), (b) or (c).

89-91. (Currently Amended) The glycolipopeptide of claim 1 which comprises a tumor-associated carbohydrate epitope.

90-92. (Currently Amended) The glycolipopeptide of claim 89-91 where the carbohydrate epitope is GalNAc (Tn).

91-93. (Currently Amended) The glycolipopeptide of claim 89-91 where the carbohydrate epitope is sialyl Tn.

92-94. (Currently Amended) The glycolipopeptide of claim 89-91 where the carbohydrate epitope is Gal-GalNAc (TF).

93-95. (Currently Amended) The glycolipopeptide of claim 85-87 where the threonine of PDTRP is glycosylated.

94-96. (Currently Amended) The glycolipopeptide of claim 93-95 where the threonine of PDTRP is O-linked to Tn.

95-97. (Currently Amended) The glycopeptide of claim 1 in which at least two amino acids are lipidated.

96-98. (Currently Amended) The glycolipopeptide claim 1 in which at least two interior amino acids are lipidated.

In re of: 10/511,101 KOGANTY4A

|        ~~97.~~99. (Currently Amended) The glycolipopeptide of  
claim 1 in which all of the lipidated amino acids are interior  
amino acids.

|        ~~98.~~100. (Currently Amended) The glycolipopeptide of  
claim 1 characterized by a carboxy terminal sequence SSL,  
where each of the serines is lipidated.

|                ~~99.~~101 - ~~131.~~133 (Cancelled)